

Quantum-Classical Monte Carlo Algorithm for Simulating AQC

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I will present a hybrid Monte Carlo algorithm designed to simulate quantum and classical systems at equilibrium. The method is based on a novel decomposition of the quantum partition function devised to bridge the algorithmic gap between quantum and classical thermal simulation algorithms. I will argue that the algorithm is suited to tackle quantum many-body systems that exhibit a range of dominant fluctuations from ‘fully-quantum’ to ‘fully-classical and as such is especially applicable to simulations of adiabatic quantum computing processes.

This is a joint work with Tameem Albash and Gene Wagenbreth.